

Group 2 and halogens – 2021/20 GCE AS Chemistry A**1. Nov/2021/Paper_H032/01/No.13**

What is the number of unsaturated isomers (structural and stereoisomers) that have the molecular formula C_4H_8 ?

- A** 3
B 4
C 5
D 6

Your answer

[1]

2. Nov/2022/Paper_H032/01/No.22(a, b)

This question is about compounds of bromine.

(a) Bromine reacts with phosphorus, P_4 , to form phosphorus tribromide, PBr_3 .

(i) Complete the electron configuration of a bromine atom.

$1s^2$ [1]

(ii) Write the equation for the reaction of phosphorus with bromine.

..... [1]

(b) A compound of bromine is a solid at room temperature. The electrical conductivity of the compound at different physical states is shown in the table.

Physical state	Electrical conductivity
solid	poor
liquid	good

Name the type of lattice in the compound at room temperature and explain the different electrical conductivities.

Name of lattice

Explanation for different conductivities

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[2]

3. Nov/2020/Paper_H032/02/No.3(b, d)

(b) Calcium reacts with bromine to form calcium bromide, CaBr_2 .

(i) Draw a '*dot-and-cross*' diagram to show the bonding in CaBr_2 .

Show **outer** electrons only.

[2]

(ii) The reaction of barium with bromine is more vigorous than the reaction of calcium with bromine.

Explain why.

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..... **[3]**

(d) Bromine reacts with concentrated sodium hydroxide at 50 °C as in the equation below.



(i) Write the systematic name for NaBrO₃.

..... [1]

(ii) This reaction is an example of disproportionation.

Use oxidation numbers to explain why. Include the meaning of the term **disproportionation**.

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..... [3]